

Applicant : James H. Flater et al.
For : LIGHTWEIGHT FIFTH WHEEL HITCH ASSEMBLY
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In the Specification:

Please replace the paragraph beginning on page 3, line 9 with the following amended paragraph:

Another aspect of the present invention is to provide a fifth wheel hitch assembly operable between a fully locked condition and a fully released condition that includes a top hitch plate including a top surface adapted to support a load thereon, a bottom surface opposite the top surface, a forward end having a convex shape, and a rearward end bifurcated into a first portion and a second portion, wherein the first portion and the second portion define a throat therebetween for receiving a ~~kin~~ king pin therein. The fifth wheel hitch assembly also includes a lock jaw pivotably coupled to the hitch plate at the throat of the hitch plate and pivotable between a fully locked position and a fully released position, and a jaw pin rotatably coupled to the hitch plate and pivotably coupling the lock jaw to the hitch plate. The jaw pin includes a cammed shaft portion and a head portion, wherein the cammed shaft portion abuts the lock jaw such that rotation of the jaw pin adjusts the location of the lock jaw with respect to the hitch plate, and wherein the head portion includes an outer peripheral edge having a plurality of notches spaced radially thereabout. The fifth wheel hitch assembly further includes an adjustable pin movable between an engaged position, wherein the adjustable pin is received within one of the notches of the jaw pin, thereby preventing rotation of the jaw pin, and an unengaged position, wherein the adjustment pin is not located within one of the notches of the jaw pin, thereby allowing rotation of the jaw pin.

Please replace the paragraph beginning on page 5, line 21 with the following amended paragraph:

The reference numeral 10 (Figs. 1-3) generally designates a fifth wheel hitch assembly embodying the present invention. In the illustrated example, the hitch assembly 10 includes a top hitch plate 12 having a top surface 14 adapted to support a load thereon, a bottom surface 16 opposite the top surface 14, a forward end 18 having a generally convex shape, and a rearward end 20 bifurcated into a first portion 22 and a second portion 24, wherein the first portion 22 and the second portion 24 define a throat 26 therebetween for receiving a king pin

(not shown) therein. The top hitch plate 12 also includes a first laterally-extending structural support rib or a forward rib 28 extending downwardly from the bottom surface 16 and located between the forward end 18 and the rearward end 20 of the hitch plate 12. The hitch plate 12 further includes a second laterally extending structural support rib or rearward rib 30 extending downwardly from the bottom surface 16 and located between the first support rib 28 and the rearward end 20 of hitch plate 12. The forward rib 28 and rearward rib 30 each extend laterally across the bottom surface 16 of the hitch plate 12 between a pair of outer walls 32 that are located on opposite sides of the hitch plate 12 and extend downwardly from the bottom surface 16. Each outer wall 32 includes an aperture 34 extending therethrough and adapted to receive a pivot pin 36 therethrough, as described below. The hitch plate 12 further includes a pair of inner ears 38 extending longitudinally between the forward rib 28 and the rearward rib 30. Each ear 38 includes an aperture 40 extending therethrough and adapted to receive the pivot pin 36 therein, as described below. Each ear 38 is substantially offset from at least a select one of the forward rib 28 and the rearward rib 30, thereby providing spaces 42 between the forward rib 28, or the rearward rib 30. Preferably, each ear 38 is substantially offset from both the forward rib 28 and the rearward rib 30 to provide a space 42 between each ear 38 and both the forward rib 28 and rearward rib 30, thereby reducing the material required to construct the hitch plate 12 as compared to a hitch plate wherein the ears extend the full distance and are connected to a pair of associated ribs. Of particular significance, the inventive inner ear configuration eliminates the need for risers when casting, as well as the need for any post-casting surface treatment, thereby markedly improving manufacturability.

Please replace the paragraph beginning on page 6, line 28 with the following amended paragraph:

The hitch assembly 10 (Figs. 1-3) further includes a lock jaw 60 pivotably coupled to the hitch plate 12 within the throat 26 of the hitch plate 12 via the locking jaw pin 54. The locking jaw 60 is provided in a U-shape and is bifurcated into two integral branches 62 and 64. The branch 64 is a locking branch, while the branch 62 will be called, for convenience, a camming branch. The central axis of the pivot-pin 54 is laterally offset from the dead end

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portion of the throat 26. The locking jaw 60 pivots on the pin 54 between the fully closed and locked position, as shown in Fig. 1, an unlocked position, as shown in Fig. 2, and the fully opened or "ready to couple" position, as shown in Fig. 3. The locking jaw 60 has a concave recess 66 located between the branches 62 and 64 to cooperate with a concave forward end 68 of the throat 26, thereby cylindrically surrounding a neck portion of the king pin (not shown). The branch 62 is generally forward of the central axis of the locking jaw pin 54, while the branch 64 is generally rearward of this axis, except in the fully open position of the locking jaw 60. The forwardly-located branch 62 includes a protruding finger 70 having a camming surface 72 near the end thereof. The rearward branch 64 includes ~~the~~ a concave king pin lock surface 66 on an inner surface and a concave hook-receiving recess 76 on an outer surface thereof.

Please replace the paragraph beginning on page 7, line 20 with the following amended paragraph:

The hitch assembly 10 further includes a hitch actuator assembly 84 that includes a manual actuator handle or release lever 86 slidably coupled to the hitch plate 12, and operable between a retracted position corresponding to the locked position of the hitch assembly 10, as shown in Fig. 1, and an extended position corresponding to the fully open position of the hitch assembly 10, as shown in Fig. 3. The actuator assembly 84 also includes an L-shaped first linkage member 88 having a first end 90 pivotally coupled to the release lever 86 at a pivot point 92, a second end 94 pivotally coupled to the hitch plate 12 at a pivot point 96, and a pivot point 98 located at a midpoint of the first linkage member 88 located between the first end 90 and the second end 94. A second linkage member 100 includes a first end 102 pivotally coupled at the pivot point 98 to the first linkage member 88, and a second end 104. The second linkage member 100 includes a longitudinally-extending slot 106 having a bend 108 along the length thereof. The second linkage member 100 is slidably coupled to the hitch plate 12 via hardware 110, such as a machined bolt, that extends through the slot 106. A third linkage member 112 has a first end 114 that is pivotally coupled to the second end 104 of the second linkage member 100 at a pivot point 116, and a second end 118 pivotally coupled to

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the hook jaw 78 at a pivot point 120 located along the length thereof. The release lever 86, linkage members 88, 100 and 112, and the associated pivot points 92, 96, 98, 116 and 120 are assembled such that pivot point 116 between second linkage member 100 and third linkage member 112 is located rearwardly of pivot point 120 between third linkage member 112 and hook jaw 78, that is in turn located rearwardly of the pivot point formed by pin 58 about which the hook jaw 78 rotates, when the hitch assembly 10 is in the fully locked position. As a result, a force exerted by the hook jaw 78 in a direction represented by direction arrow 122 creates a moment arm force about pivot point 116, resulting in a torquing force about pivot point 116 in a direction as indicated by directional arrow 124, thereby causing the second linkage arm 100 to pivot about the ~~connector~~ hardware 110 in a direction as indicated by directional arrow 126, resulting in a force being exerted on the pivot point 116 and the pivot point at the second end 118 in a direction as indicated by directional arrow 128, and forcing the hook jaw 78 to remain engaged with the locking jaw 60. The force exerted on the hook jaw 78 in a direction as indicated by directional arrow 128 reduces the force required to be exerted by a coil spring 129 positioned so as to bias the release lever 86 towards the retracted position and increases the lock-up pressure of the hitch assembly 10 when in the fully locked position. Because the bias force that must be exerted by spring 129 is reduced, a spring may be utilized that requires less pulling force to be applied to release handle 86. As a result, the pull force required to release the lock may be reduced to as low as 30 pounds, which is half that required for conventional release handles.